



Aerospace & Defense Solutions Provider

Leading Technology Corporation



www.leadingtechno.com



INTERPOINT
A CRANE CO. COMPANY



FILTEK



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PARTNERS

Crane Interpoint 4 DC-DC Converters EMI Filters	Northrop Grumman Italia 16 GPS/INS IMU (MEMS, FOG)
NLS Displays 6 Rugged Military Display Monitors Industrial Display Monitors	Filtek 18 Band Pass Filters
Aitech Defense Systems 8 Single Board Computers Rugged Computer Systems	Prime Power 20 DC/DC AC/DC Dual Input (AC and DC)
STAR-Dundee 10 SpaceWire SpaceFibre	iWave Systems 22 FPGA IP Core ARINC 818-2
Fortasa Memory Systems 12 Flash Memory Storage Solutions	PPG Cuming Microwave 25 Microwave Absorbers Adhesives Compounds
Diamond SA 14 Fiber Optic Connectors Custom Assemblies	Cofan USA 26 Metal Core PCB

DC-DC Converters High Reliability

120 Watts

MOR Series

65 Watts

MHP270 Series
MFL Series

50 Watts

MFX Series

35 Watts

MWR Series

30 Watts

MTR 59 – MTR Series
FMTR Series
MTR 40 Series

25 Watts

MFK Series

15 Watts

MHV Series
MHF+ Series

EMI Filters High Reliability

15 AMPS

FMCE-1528 Series
FME28-461 Series

8 AMPS

FMCE-0828 Series

7 AMPS

FMD28 Series

5 AMPS

FMCE-0528 Series

3 AMPS

FMCE-0328



DC-DC Converters Space

100 Watts

SMFLHP Series

65 Watts

SMFL Series

35 Watts

SMRT Series

30 Watts

SMTR Series

16 Watts

MFP Series

15 Watts

SMHF Series

5 Watts

SMSA Series

1.5 Watts

SLH Series

EMI Filters Space

10 Amps

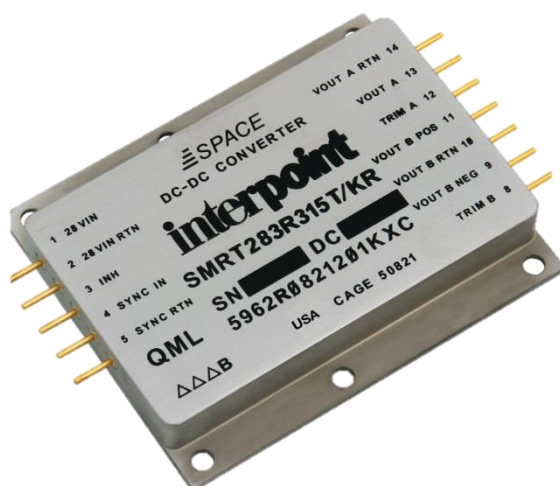
SFME28-461

2.7 Amps

SFMC28-461

0.8 Amps

STF28-461





KC-135 REFUELING TANKER (ROBE):

RFT2-17-SKB-HTR

Explosion proof: iaw RTCA/DO-160D paragraph 9.3.2 for Explosive Atmosphere, (Ambient pressure, 50C).

Vibration per MIL-167-1

Shock per MIL-STD-810

MIL-STD-461 EMI

LCD Heater for rapid warming from -45C cold storage in five minutes



UH-60A BLACK HAWK HELICOPTER:

CSC-17-CAT5A-810-SK

Explosion proof: iaw RTCA/DO-160D paragraph 9.3.2 for Explosive Atmosphere, (Ambient pressure, 50C).

Vibration per MIL-167-1

Shock per MIL-STD-810

MIL-STD-461 EMI

LCD Heater for rapid warming from -45C cold storage in five minutes



C4ISR MC-12 TURBOPROP:

RFT2-2LH-17-USB-WS-R

Explosion proof: iaw RTCA/DO-160D paragraph 9.3.2 for Explosive Atmosphere, (Ambient pressure, 50C).

Vibration per MIL-167-1

Shock per MIL-STD-810

MIL-STD-461 EMI

LCD Heater for rapid warming from -45C cold storage in five minutes



NEURO LOGIC
SYSTEMS

www.nlsdisplays.com

Multi-Head Displays & KVMs

Military and Industrial Displays with
two or three LCDs



RackSlide Pull-Out KVM

Single and multi-head Displays and
KVMs with LCD sizes from 15" to 27"



Freestanding & VESA Mount

Displays in sizes from 8" to 49" with
VESA standard rear mounting
patterns



Smart Computer Displays

Panels PCs, Multi-Function Displays
and Computer Workstations

Rack and Panel Mount

For Industry Standard 19"
Equipment Racks and Operator
Control Consoles



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Military / Aerospace Products

SBCS and General Purpose Products
GPGPU Products
Ethernet and PCIs Switches
Carrier Cards and Transition Modules
Peripheral I/O Boards
Remote I/O
Memory Boards
PMC/XMC Mezzanines
Power Supplies
Rugged Systems

Space Products

Single Board Computers (SBCs)
Carrier Cards and Transition Modules
Peripheral I/O Boards
Remote I/O
Memory Boards
Rugged Enclosures





C535 Typhoon GPGPU 3U VPX
Supercomputer Board



M577 Multi-Channel
Frame Grabber XMC



A176 Cyclone GPGPU Fanless Small
FF RediBuilt Supercomputer



A195 RediBuilt GPGPU
Rugged Computer

SpaceWire

Chip and IP Core Products

Software Products

- Debugging & Analysis Tools Drivers
- Software Development Environment

Hardware Products

- Interface Equipment
- Routing Devices
- Debugging & Analysis Equipment
- USB Connections
- PCI Form Connections
- Protection
- Accessories



VHDL

SpaceWire IP Core

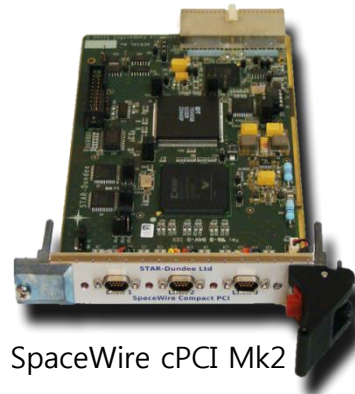
SpaceFibre

SpaceFibre Chip and IP Core Products

SpaceFibre H/W Products



SpaceWire Brick Mk3



SpaceWire cPCI Mk2



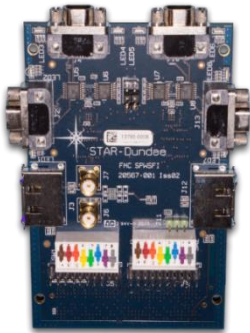
SpaceWire Brick Mk3



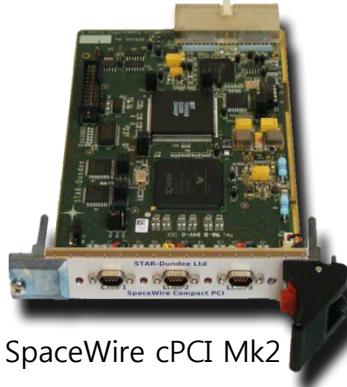
SpaceWire EGSE &
Device Simulator



SpaceWire Isolator



FMC SpaceWire Board



SpaceWire cPCI Mk2



SpaceWire PCI Mk2



SpaceWire PCIe



SpaceWire Router Mk2S



Link Analyser Mk2 Front



SpaceWire Physical Layer Tester



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Single Chip Drive

Industrial eMMC
ATA Tiny Drive

USB SSD Products

USB Disk Module

Flash Card Products

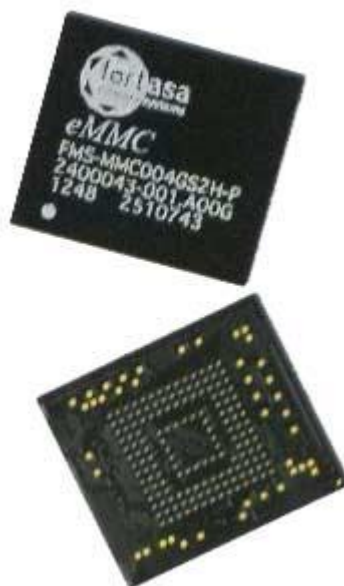
CompactFlash Card
CFast Card
PCMCIA Card
SD Card
microSD Card

PATA SSD Products

1.8" PATA SSD
2.5" PATA SSD
PATA Disk Module
PATA Disk Chip
Military PATA Drive

SATA SSD Products

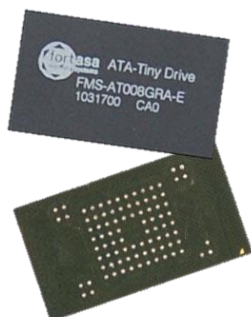
1.8" SATA SSD
2.5" SATA SSD
mSATA
Slim SATA Module
SATA Disk Module
SATA Disk Chip
SATA Dual Flash Drive



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Model	ATA Tiny Drive
Interface	91-ball - 14mm x 24mm x 1.9xx (Max) LBGGA package
Capacity	512MB~8GB
Sustained Read/Write Performance(MB/sec)	Upto: 50/40
Transfer Mode	PIO Mode-6; MW-DMA Mode-4; UDMA Mode-6
ECC Support	Up to 24 bit correction (BCH)
Standard Op Temp. (°C)	0~+70
Industrial Op Temp.(°C)	-40~+85
Storage Temp.(°C)	-40~+100
Shock	50G
Vibration	15G
Humidity	5% to 95%
Lower Power Consumption	Active mode: 300 mA Sleep mode: 470µA
MTBF (hours)	>2,000,000



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Assemblies & Adapters

Single fiber based
Multiple fiber based
Harsh Environment
Field termination
Special Assemblies

Active Modules

Industrial switches
Office switches
19 switch solutions
Media converters
SFP modules-MAT/MAR
Network Management (NMP)

Distributors & Outlets

Patch panels & distributors
Wall distributors
Outlet-and-Accessories

Accessories & Couplers

Attenuators
Hybrid adapters
Transition Adapters UGT
OTM & OGR
MAS / ADT-UNI / IMOD
Couplers

Field Termination & Tools

Field termination
Inspection equipment
DNA Kit





X-BEAM



OD3



MIL-38999 STYLE





**LISA200
NAVEX-M ITAR FREE
MEMS AHRS**



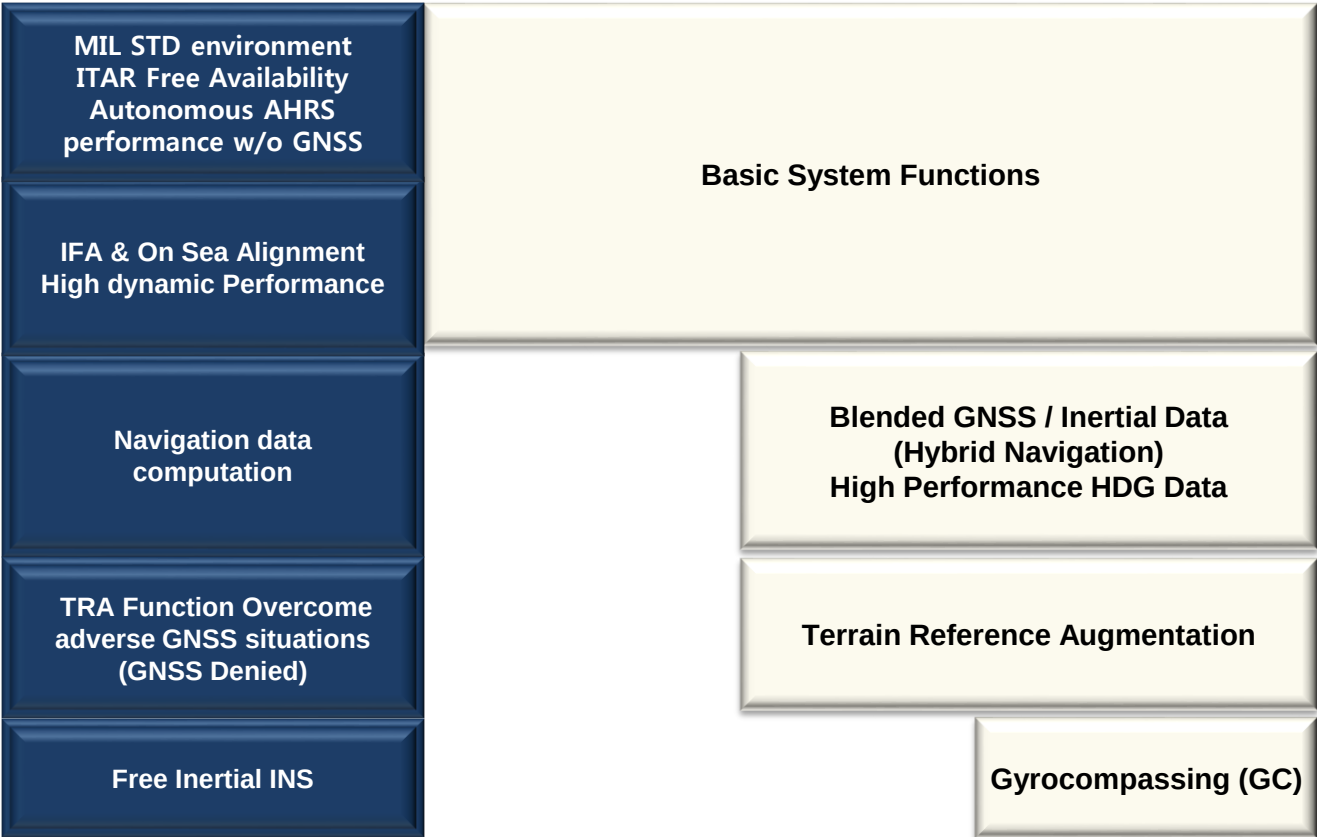
**NAVEX-100 ITAR FREE
FINS100 EGI**



**NAVEX-GA
MEMS AHRS
ITAR FREE**



**LISA200 NAVEX
FOG AHRS - GNSS**





**NAVEX-GL
ITAR FREE**



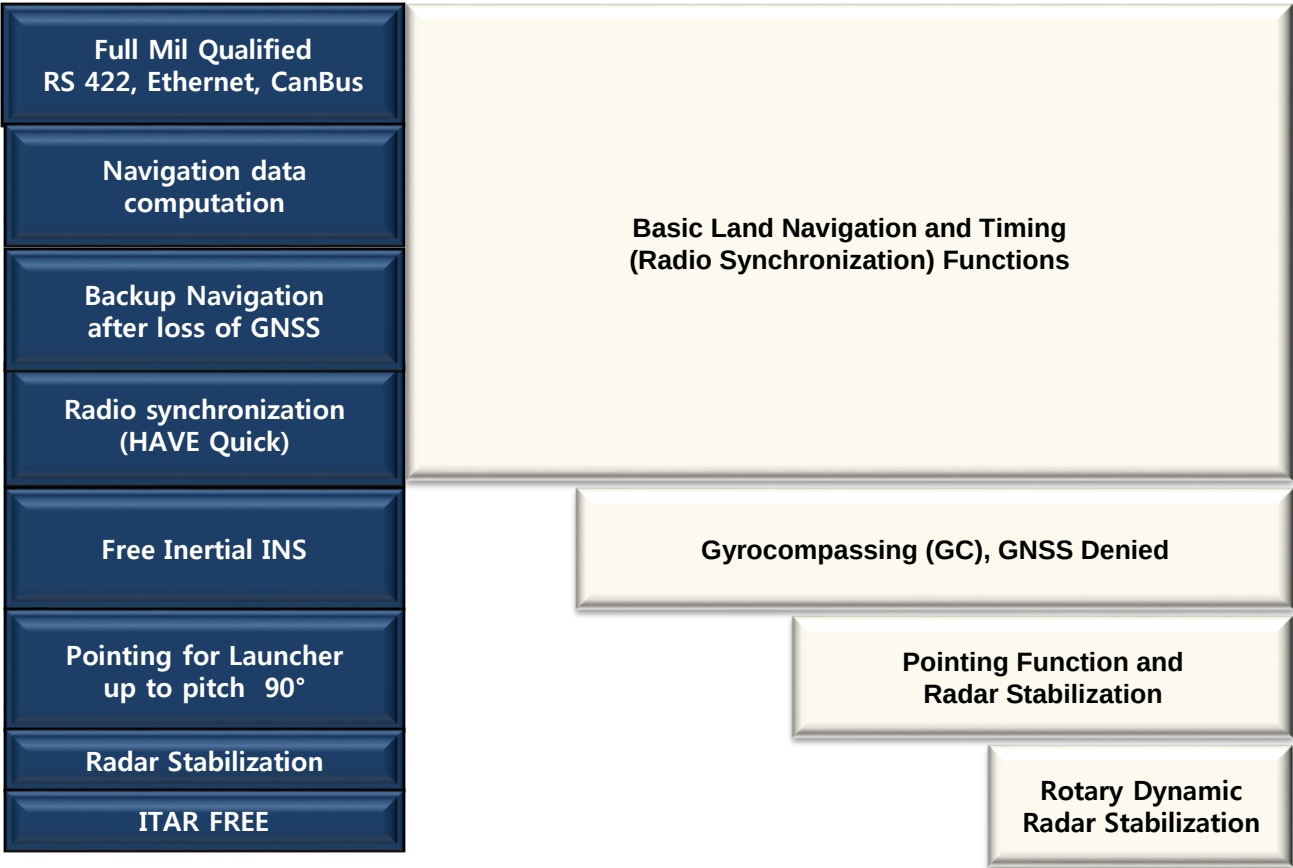
LN270E



**NAVEX G1
ITAR FREE**



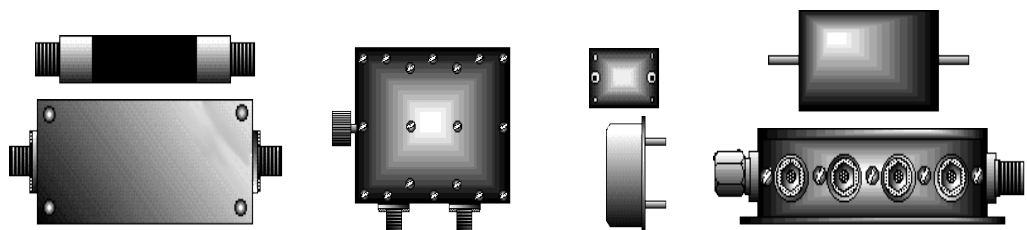
LN270



Products

- Band Pass
- Low Pass
- High Pass
- Band Reject

제품의 PACKAGE 형상은 다음과 같습니다.



Div.	Type/Series	Characteristic	Center Frequency*
BP	Tubular/BP02	Small Size	250 to 4000 MHz
	Tubular/BP03	Economical	100 to 2500 MHz
	Tubular/BP04	High Power	50 to 1500 MHz
	Lumped/BP11	Low Frequency	10 to 150 MHz
	Lumped/BP12	Miniature	250 to 2500 MHz
	Lumped/BP13	TO-8 Package	250 to 2500 MHz
	Miniature Helical/BP15	Rugged Package	200 to 750 MHz
	Cavity/BP21	Low Frequency Cavity	30 to 450 MHz
	Cavity/BP22	Moderate Frequency Cavity	400 to 3000 MHz
	Cavity/BP23	Low Loss Cavity	500 to 2000 MHz
	Cavity/BP24	Low Loss Cavity	1000 to 3000 MHz
	Cavity/BP25	Low Loss Cavity	2000 to 6000 MHz
	Cavity/BP26	Low Loss Cavity	6000 to 12400 MHz
	Comblined/BP30	Economical	1000 to 18000 MHz
	Interdigital/BP31	Low Loss	1000 to 12000 MHz
	Comblined/BP32	Small Package	4000 to 12000 MHz
	Tunable/BP40	Full Octave Tuning	31 to 2000 MHz



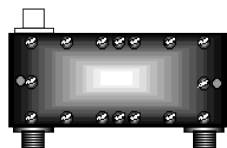
Lumped/BP11



Tubular/BP02



Miniature Helical /BP15



Interdigital/BP31



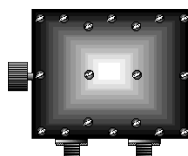
Cavity/BP21 or BP/22



Cavity/BP23



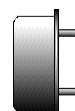
Comblined/BP32



Tunable/BP40



Lumped/BP12



Lumped/BP13

Div.	Type/Series	Characteristic	Center Frequency*
LP	Tubular/LP02	Small Size	250 to 4000 MHz
	Tubular/LP03	Economical	100 to 2500 MHz
	Tubular/LP04	High Power	50 to 1500 MHz
	Lumped/LP11	Low Frequency	10 to 150 MHz
	Lumped/LP12	Miniature	250 to 2500 MHz
	Lumped/LP13	TO-8 Package	250 to 2500 MHz
HP	Lumped/HP11	Low Frequency	10 to 150 MHz
	Lumped/HP12	Miniature	300 to 2000 MHz
	Lumped/HP13	TO-8 Package	300 to 2000 MHz
	Suspended Substrate/HP35	High Frequency	
BR Reject	Lumped/BR11	Low Frequency	10 to 100 MHz
	Cavity/BR21	Narrow Band	30 to 450 MHz
	Cavity/BR22	Narrow Band	400 to 1500 MHz
	Cavity/BR30	High Frequency	2500 to 8000 MHz
	Tunable/BR40	Full Octave Tuning	31 to 1000 MHz



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DC/DC

MIL-STD-704 (28VDC)
MIL-STD-1275 (28VDC)
Specialty products

AC/DC

MIL-STD-704 (AC)
MIL-STD-1399
MS Series
MAC Series

MP2163 (50 WATTS) 50 WATT DC/DC CONVERTER FOR GROUND VEHICLES

	INPUT	OUT 1
VOLTAGE	+16-40VDC	+12VDC
CURRENT	1.64-5.46A	4.2A

XP2106 (100 WATTS) 100 WATT TRIPLE OUTPUT DC/DC CONVERTER

	INPUT	OUT 1	OUT 2	OUT 3
VOLTAGE	+16-36VDC	+5VDC	+5VDC	+12VDC
CURRENT	9.16-15.25 AMPS	2.5 AMPS	2.5 AMPS	6.5 AMPS

XP2105 (200 WATTS) DUAL OUTPUT DC/DC CONVERTER

	INPUT	OUT2	OUT2
VOLTAGE	+16-36VDC	+24VDC	+5VDC
CURRENT	6.89-15.5 AMPS	7 AMPS	2.1 AMPS



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**MP2103 (10 WATT)
HIGH DENSITY 4 OUTPUT DC/DC CONVERTER**

	INPUT	OUT 1	OUT 2	OUT 3	OUT 4
VOLTAGE	+9-15vdc	+5VDC	+5VDC	+15VDC	-15VDC
CURRENT	2.24-3.73A	.12A	.11A	.10A	1.5A

**LVP5-5D15-12 (12 WATTS)
MULTI OUTPUT HIGH DENSITY DC/DC CONVERTER MODULE**

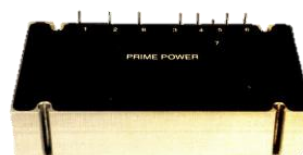
	INPUT	OUT 1	OUT 2	OUT 3
VOLTAGE	+9VDC-36VDC	+5VDC	+15VDC	-15VDC
CURRENT	0.32-1.25A	1.2A	200mA	50mA

**MP2104 (60 WATTS)
DC/DC CONVERTER 60WATTS**

	INPUT	OUTPUT
VOLTAGE	+15VDC-40VDC	+12VDC
CURRENT	2.15-5.72A	5A

**MS6 SERIES (1000 WATTS)
MODULAR SYSTEMS / SERIES 6**

	INPUT	OUT 1	OUT 2	OUT 3	OUT 4
VOLTAGE	+28VDC	+5VDC	+3.3VDC	+12VDC	-12VDC
CURRENT	45A	100A	60A	2A	2A



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www.iwavesystems.com

System on Modules

Arria 10 SoC System on Modules
Qseven Modules
SODIMM Modules
MXM Modules

Developmental Platforms

RZ/G1H Development Board
RZ/G1E Development Kit
RZ/G1M, G1N Development Kit
i.MX6 SODIMM Development Kit
i.MX6UL Development Kit
i.MX6ULL Development Kit
Cyclone V SoC Development Kit
Vybrid uMXM Development Kit
i.MX6 Q7 Development Kit
i.MX6 MXM Development Kit
i.MX53 Development Kit
DM8168 Q7 Development Kit
i.MZ51 Q7 Development Kit
Generic Q7 Development Kit
i.MX51 Development Kit
Atom Z5xx Development Kit
PXA 270 Development Kit

Single Board Computers

Snapdragon 820 SBC
RZ/G1E Pico-ITX SBC
i.MX6 Pico ITX SBC
Vybrid Pico ITX SBC
i.MX50 QSB
i.MX27 SBC

Board Support Packages

Windows Embedded Compact
GHS INTEGRITY RTOS

FPGA IP Cores

Processor Cores
Peripheral Cores
Storage Cores
Interface Cores
Video Interface Cores

GPS Modules

GPS with Active Antenna
GPS with Patch Antenna



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ARINC 818-2 IP Core

Streaming Interface used as Video TX and RX interface.

Video Input Format Supported.

Resolution depends on the FPGA transceiver speed used for implementation

For SXGA (1280x1024@60Hz) resolution, required data rate is 2.5Gbps

Pixel Format supported.

Monochrome

RGB

YcbCr

RGBA

Pixel Aspect ratio supported.

1:1

1:1.2

1.2:1

NTSC (approx 8:9)

PAL (16:15)

Frame Rate supported.

15fps

20fps

24

24 * 1000 / 1001

25 (PAL)

30

30 * 1000 / 1001 (29.97 NTSC)

60

50

60 * 1000 / 1001 (59.94 NTSC)

50 (VESA DMT)

60 (VESA DMT)

75 (VESA DMT)

85 (VESA DMT)

50 (VESA CVT)

60 (VESA CVT)

75 (VESA CVT)

85 (VESA CVT)

Pixel Table Number supported

8-bit Components, four components per transmission word

Pixel Array Order supported

Left to Right, Top to Bottom

Line Synchronous Mode supported

32-bit Full Image CRC supported

Following are user configurable parameters

No. Of rows

No.of Columns

Video Format Code

Pixel Aspect Ratioe

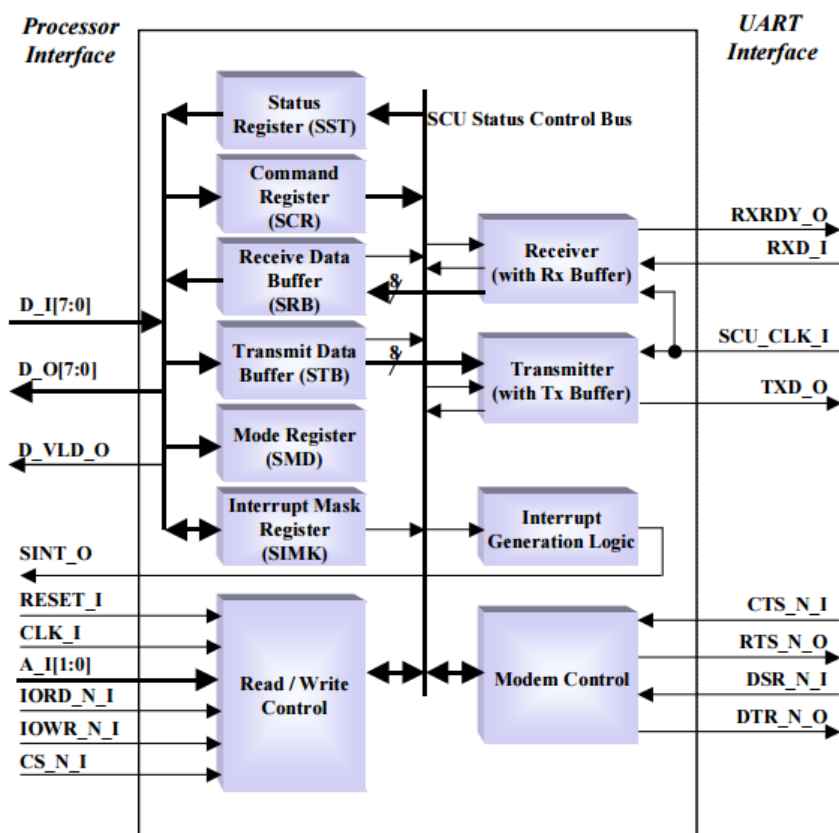
Video Frame rate

Color Information Code



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8251 Serial Controller



Product Highlights

RS-232-C protocol support

Baud rate generator or timer output selectable as Tx/Rx clock

Asynchronous communication only

Serial interrupt support

Clock rates of baud rate of x16 or x64

Character length of 7 or 8 bits

1 or 2 Stop bits

Break transmission

Automatic break detection

Full duplex double buffer system

Parity addition/checking

Error detection for parity, overrun and framing errors

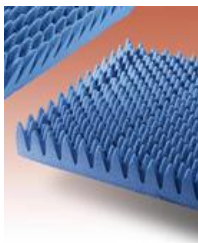


PPG Aerospace

Cuming Microwave

www.cumingmicrowave.com

High Performance Broadbanded
Microwave Absorbers



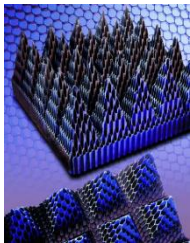
Anechoic Chamber
Materials



Rubber Sheet Microwave
Absorbers



High Power Broadbanded Pyramidal
Honeycomb RF Absorbers



Lightweight, Structural, Broadbanded
Honeycomb Radar Absorber



Low Loss Dielectric
Stock Materials



Rigid & Castable
Microwave Absorbers



Carbon-Based Foam
Microwave Absorbers



Metal Core PCB Capability

MCPCB varieties: Single-sided / Double-sided / Multi layer / Super Pillar

Copper Foil: 1 oz to 8 oz

SM colour: Green, white, black, blue and red

Surface Finish: OSP, ENIG, Imm Ag, HASL and Lead Free HASL

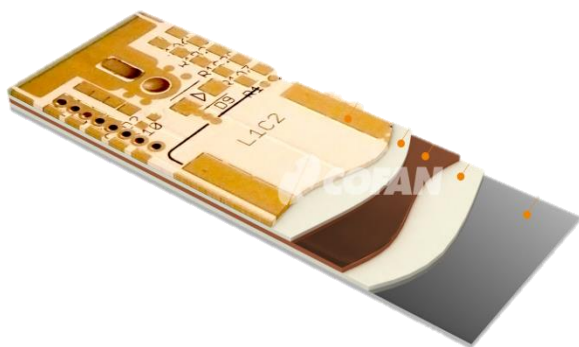
Machining: V-scored, CNC routed and punched options

Metal alloys: Aluminum and copper, 0.5 – 3.0 mm standard thickness

Dielectrics: Ventec, Laird, Sekisui, Aismalibar and Polytronics*

Thermal Modeling

Super Pillar MCPCB Concepts (A Cofan Patented Technology)



Advantages

Increase efficiency of thermal dissipation

Withstand high power components

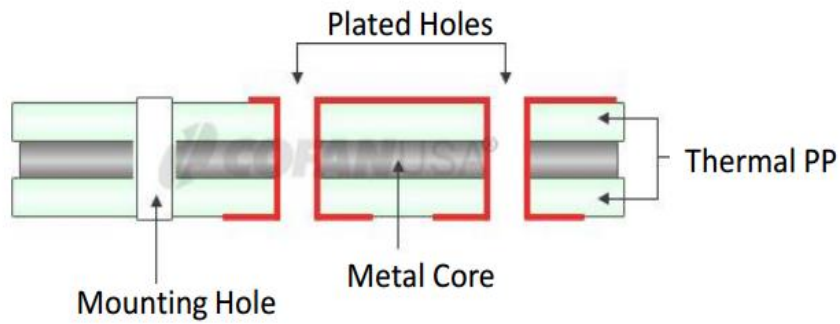
Drive higher current

Allow usage of lower cost pre-preg

Concepts

Build a Al/Cu Pillar through the MCPCB

Bypass the pre-preg to eliminate one layer of thermal resistance



Max. Temp. 130 ~ 170 degrees C

1. High Efficiency
2. High Thermal Conductivity
3. High Currency



